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## Non-Communicable Diseases among Orang Asli of Kampung Ulu Tual

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### Abstract

**Introduction:** Non communicable disease is increasing in trend and becoming one of significant major global problem that involves all strata of population including the aborigines. In fact, the prevalence might be higher in this population due to lack of access for regular screening and different sociodemographic background including tendency to migrate in different areas.

**Methodology:** This study aims to identify the prevalence of non-communicable diseases among adult population of Orang Asli in the remote area of Pahang. A cross sectional study was conducted on 20<sup>th</sup> April 2019 during community service in Kampung Ulu Tual, whereby communicable diseases had been screened. SPSS version 23 is used for statistical analysis. Associations between variables were measured.

**Results:** Prevalence of overweight/obesity is 36.6%, hypertension is 3.3% and abnormal blood sugar is 53.3%. There is no statistical significant association between prevalence of the non-communicable diseases across age and gender.

**Discussion:** The prevalence of overweight/obesity among Orang Asli in this region is almost similar in our national prevalence with more than half of them are prone to develop diabetes. This study proved a linear relationship between overweight/obesity, abdominal obesity and diabetes.

**Conclusion:** These results highlight the need for urgent interventions to reduce and prevent risk factors of non-communicable diseases even in rural area of Pahang.

### Introduction

Orang Asli or "aboriginal people" are the indigenous people and the oldest inhabitants of Peninsular Malaysia. Kampung Ulu Tual, Kuala Lipis is also one of the remote areas in Pahang inhabited by almost 300 adults of Orang Asli. They are isolated from the medical access and prone to left behind from medical screening. The area has very minimal access to electricity and telecommunications network [1]. The village is reachable mainly via four-wheel-drive vehicles through muddy terrain. Some villagers also need to drive across streams or rivers. Sadly, non-communicable diseases are a major global problem that involves all strata of population regardless of the location [2,3]. Health status of aboriginal or indigenous generally is poor compared to the general population all over the world. They survived with stark disparities in health when compared with national populations. These significant differences arise from a combination of factors that relate to the social and economic predictors of health, combined with deprived of opportunity and a rapid mass destruction of indigenous health systems, forests, natural resources and indigenous knowledge. There is a strong association between poor social and economic status with higher prevalence of non-communicable diseases [4]. Furthermore, they also practice cigarette smoking and other kind of traditional smokes that endanger them for cardiovascular morbidity [5]. Therefore, this pioneer study aims to identify the prevalence of non-communicable diseases among adult population of Kampung Ulu Tual aborigines in order to empower them for further health seeking behavior.

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## Methodology

A cross sectional study was conducted on 20<sup>th</sup> April 2019 during community service in Kampung Ulu Tual. The calculated sample size based on single proportion formula is 30 with 80% confidence interval and 10% of error margin with reference to prevalence of hypertension among selected Orang Asli villagers [3]. All adults attending the health medical check-up were voluntarily included in the study and consented. Blood pressure was recorded using standardized sphygmomanometer for two readings after the respondent rest for at least 5 minutes. The sphygmomanometer was placed in the same level with the respondent's heart. The subject's blood pressure was measured in sitting position. The cuff was fitted snugly at the lower third of the right arm prior to the measurement. Anthropometric measurements for body weight and height were measured using SECA weighing scale and SECA body meter. All the measuring scales were calibrated prior to usage. Capillary random blood sugar was measured using Uright glucometer. The capillary blood was sampled from finger in sterile steps. All the measurements were recorded in data collection form. The readings of the measurements were discussed to the respondents and appropriate consultations were done. Following the detection of the disease, all of respondents were channeled for follow-up at nearby Health Clinics with empowerment of healthy lifestyle modification. For statistical analysis, SPSS version 23 was used for descriptive analysis of demographic data and association with the variables. Mann Whitney U test was used for analyzing the association between categorical data and the measured parameters (non-normally distributed data). This research is funded by International Islamic University of Malaysia Research Initiative Grant Scheme (Publication) P-RIGS18-034-0034

## Results

Ages of the respondents ranged from 22 to 71 year old with 73.3% of them were male Orang Asli. The prevalence of underweight is 13.3% and overweight/obesity is 36.6%, with 26.7% of the adult population has abdominal obesity. 3.3% of them are hypertensive meanwhile 54.2% have high capillary sugar value. There was no statistical significant association between gender and smoking status in terms of prevalence of the non-communicable diseases. However, the prevalence was significantly different if compared across age group.

There was a significant association between Body Mass Index (BMI) status and age group. This study proved that there was higher prevalence of underweight among elderly age group whereby younger age group associated with higher prevalence of obesity and overweight.

This study also proved a significant linear correlation between the respondents' abdominal circumference and body mass index measurement. However, there was no significant correlation between measurements of blood pressure, capillary sugar and body mass index among the Aborigines.

## Discussion

Majority of the respondents were young males in view of they are among the leaders of their tribes and representative of their families. By involving the leaders in the screening, it is expected that the message of healthy lifestyle and its awareness will be conveyed directly to other family members by them. Furthermore, health education had been given during this program and they have been given channel for subsequent medical check-up for the above non-communicable

**Table 1:** Demographic Data of Respondents.

Variables	Categories	Numbers of patients (n)	Percentage (%)
Gender	Male	22	73.3
	Female	8	26.7
Age	< 60	25	83.3
	≥ 60	5	16.7
Smoking status	Yes	22	73.3
	No	8	26.7

**Table 2:** Clinical Parameters of Respondents.

Variables	Categories	Numbers of patients (n)	Percentage (%)
BMI	Underweight	4	13.3
	Normal	15	50
	Overweight	7	23.3
	Obese 1	3	10
	Obese 2	1	3.3
Abdominal obesity	Yes	8	26.7
	No	22	73.3
Hypertension status	Yes	1	3.3
	No	29	96.7
Capillary sugar	Abnormal	16	53.3
	Normal	14	46.7

diseases. This is another great opportunity for us to engage with them and encourage them for adapting health seeking behavior which is indeed difficult for them to initiate on their own. This can be reflected by very low number of adults to turn up for the screening, but still meet our initial targets. It is well-known that Aborigines are shy and introvert in personality. They are also generally have language and culture barriers in which might cause them reluctant to participate in the health screening and interview [2-4,6]. Nevertheless, they were capable of understanding simple Malay language as used in our simple conversation. Hence, this study is valuable in providing a suggestive baseline data on the health and basic demographic of indigenous peoples.

The prevalence of overweight and obesity among Orang Asli in this region is almost similar in our national prevalence with more than half of them are prone to develop diabetes [5]. Therefore, it is important to include diet history and nutritional intake among the Aborigines in the future study in order to understand more about the complex risk factors of obesity among this population. This is because; Orang Asli is associated with increased physical activity and daily energy consumption in view of their culture of frequently migrating across villages and forests, which should protect them from obesity. Unless modernization had directly influence their lifestyle towards physical inactivity [7]. Nevertheless, this study proved a linear relationship between overweight/obesity and abdominal obesity among this Aborigines which is similar in other national and global studies [5,8]. This might be contributed by high carbohydrate intake in their daily meals, which might be similar as other populations in Malaysia [9,10]. This can be extrapolated by high prevalence of abnormal blood sugar among the respondents (53.3%).

Surprisingly, prevalence of hypertension in this region was lower compared to other similar studies among the Aborigines and other local studies in which other cofactors need to be identified in future

**Table 3:** Association between Variables group (Chi Square).

Variables	Gender		Age Group		Smoking status	
	Pearson Chi Square	Asymp Sig.	Pearson Chi Square	Asymp Sig.	Pearson Chi Square	Asymp Sig.
Capillary Sugar	1.399	0.237	0.034	0.855	1.399	0.237
Hypertension status	0.348	0.555	0.209	0.648	0.348	0.555
BMI status	6.64	0.156	<b>10.007</b>	<b>0.030*</b>	6.64	0.156
Abdominal obesity	3.811	0.051	0.03	0.957	3.811	0.051

**Table 4:** Significant correlation between abdominal obesity and BMI.

Correlations			
		BMI	Abdominal circumference
BMI	Pearson correlation	1	0.918
	Sig 2 tailed		<b>0.000*</b>

studies [2,3,5,8]. This is because prevalence of any form of smoking in this study is high, which is 73.3%. Thus, hypertension prevalence is expected to be higher as well. Nevertheless, the role of taking traditional herbs in their diet need to be explored further which might contributes to the protective factor. Furthermore, considering most of the respondents were within younger age group, therefore the real picture of the hypertension distribution among these Aborigines cannot be concluded yet.

## Conclusion

This study highlights the need for interventions to reduce and prevent risk factors of non-communicable diseases even in rural area of Pahang. Health screening and education should be promoted regularly among the aborigines to empower them with better lifestyle modification towards good quality of life.

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